URINARY CONCENTRATIONS OF BISPHENOL-A IN AN URBAN MINORITY BIRTH COHORT IN NEW YORK CITY, PRENATAL THROUGH AGE 7 YEARS

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Background and Aims: There is growing epidemiologic evidence that prenatal and early childhood exposures to ubiquitous endocrine disruptors, such as bisphenol A (BPA) can result in adverse disease outcomes. Insufficient information is available on the effects of BPA on minority populations in the US. Our aim is to describe BPA concentrations and correlated factors in a birth cohort through age seven years.
Methods: As part of the Columbia Center for Children's Environmental Health (CCCEH) birth cohort of African American and Dominican children living in the South Bronx and Upper Manhattan, 568 mother-child dyads were analyzed for total BPA in spot urines. Mothers were selected if they had a sample analyzed prenatally and their children were selected if they had at least one sample analyzed at age three, five or seven years. All analyses used log-transformed BPA and adjusted for specific gravity.
Results: BPA was analyzed in 377 prenatal samples (94% above limit of detection (LOD)), 419 age three year samples (98% above LOD), 401 age five year samples (98% above LOD), and 318 age seven year samples (96% above LOD). BPA concentration geometric means were higher among African Americans compared to Dominicans in prenatal (p=0.007), five year (p=0.001) and seven year (p=0.001) samples. Geometric means for the five and seven year samples were higher (p=0.002, p=0.015 respectively) for children of mothers never married at baseline compared to mothers ever married at baseline. BPA concentrations were significantly correlated with eight phthalate metabolite concentrations prenatally and at three and five years (r values from 0.12 to 0.35, all p-values <0.05). Calendar season predicted BPA concentrations in children ages three, five and seven years (summer=reference, Beta estimates -.26 to -.12 ng/ml, all p-values <0.05).
Conclusions: The CCCEH is uniquely poised to evaluate early life exposures to BPA in urban minority children.